

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/05390

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C02F1/44 B01D61/06

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C02F B01D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FR 2 281 782 A (DANSKE MEJERIERS MASKINFABRIK) 12 March 1976 (1976-03-12) figures 1,2 page 1, line 8 - line 13 page 2, line 31 -page 5, line 15	1,3
Y		8,9,17, 20
X	DE 299 07 813 U (HACO WASSERTECHNIK GMBH) 26 August 1999 (1999-08-26) cited in the application the whole document	1,5
A		8,9
	--- -/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*Z\* document member of the same patent family

Date of the actual completion of the international search

28 October 2003

Date of mailing of the international search report

10/11/2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Hoornaert, P

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/05390

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 139 740 A (OKLEJAS ROBERT A) 31 October 2000 (2000-10-31) abstract; figures 1-3,6; table 1 column 1, line 65 -column 3, line 47 column 5, line 35 -column 9, line 30 column 12, line 42 -column 13, line 49	10,12
Y A	----	11,13 1,2,6,7, 19
X	US 6 468 431 B1 (OKLELAS JR ELI) 22 October 2002 (2002-10-22) the whole document in particular figure 4	10,16
Y A	----	11,17,18 1,2,12, 19
X	US 4 973 408 A (KEEFER BOWIE G) 27 November 1990 (1990-11-27) abstract; figure 1 column 1, line 61 -column 4, line 45 column 5, line 15 -column 6, line 7 column 7, line 67 -column 8, line 9 column 9, line 28 -column 10, line 41	19
Y A	----	8,9,11, 13,18,20 10
A	DE 35 10 160 A (WEINRICH HELLMUT) 25 September 1986 (1986-09-25) claim 1; figure 1 page 2, line 1 -page 4, column 1 page 7, last paragraph -page 8, last line page 9, last paragraph -page 10, paragraph 3	1,10,19
A	US 4 321 137 A (KOHLE WOLF-ULRICH) 23 March 1982 (1982-03-23) the whole document	1,2,10
A	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 21, 3 August 2001 (2001-08-03) -& JP 2001 104954 A (KIKAI KAGAKU KENKYUSHO:KK;NISHI NIPPON RYOJU KOSAN KK), 17 April 2001 (2001-04-17) abstract; figures paragraphs '0003!-'0014! -& DATABASE WPI Derwent Publications Ltd., London, GB; AN 2001-351348 XP002259532 & JP 2001 104954 A abstract	1,3,12, 14,15
	----- -/--	

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/05390

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>DAVID J. COCK AND I. MORGAN WHITE: "The application of Pelton type impulse turbines for energy recovery on sea water reverse osmosis systems"</p> <p>DESALINATION,</p> <p>vol. 39, 1981, pages 447-458, XP008023771</p> <p>Elsevier, Amsterdam, NL</p> <p>abstract</p> <p>page 452, last paragraph -page 454</p> <p>-----</p>	<p>8,11,13,</p> <p>18,19</p>

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/EP 03/05390

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☒ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-15

A water desalination installation for the desalination of seawater by reverse osmosis comprising a pressure booster pump and a turbine mechanically coupled with the pressure booster pump

2. Claims: 16-18

A water desalination installation for the desalination of seawater by reverse osmosis comprising a high pressure pump and a turbine mechanically coupled with the high pressure pump

3. Claims: 19-20

Energy recovery unit comprising a pressure booster pump and a Pelton turbine on a common drive shaft

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 03/05390

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
FR 2281782	A	12-03-1976	DK	434974 A	15-02-1976
			DE	2533151 A1	26-02-1976
			FR	2281782 A1	12-03-1976
			NL	7509646 A	17-02-1976
DE 29907813	U	26-08-1999	DE	29907813 U1	26-08-1999
US 6139740	A	31-10-2000	WO	0209855 A1	07-02-2002
			EP	1315552 A1	04-06-2003
US 6468431	B1	22-10-2002	NONE		
US 4973408	A	27-11-1990	NONE		
DE 3510160	A	25-09-1986	DE	3510160 A1	25-09-1986
US 4321137	A	23-03-1982	DE	2907429 A1	28-08-1980
			AT	375058 B	25-06-1984
			AT	17580 A	15-11-1983
			BE	881930 A1	16-06-1980
			ES	488583 A1	01-10-1980
			FR	2449655 A1	19-09-1980
			GB	2043484 A , B	08-10-1980
			IT	1209309 B	16-07-1989
			JP	55116403 A	08-09-1980
			NL	8001051 A	28-08-1980
JP 2001104954	A	17-04-2001	NONE		